View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Purdue E-Pubs

INDIANA WARTIME TRAFFIC SPEEDS

R. E. Frost, Research Engineer,
Joint Highway Research Project,
Purdue University

December 7, 1941, brought many changes in the American way of living. One of these changes concerned our transportation. Since America moves on rubber-tired wheels, it was felt that every effort must be made to keep those wheels moving. Our supply of rubber from the Pacific has been stopped and the existing tires must be made to last.

Before the war there was no speed limit in Indiana except a "reasonable speed". After the nation's entry into war and because of the scarcity of rubber, there was much agitation for a definite speed limit. The President of the United States suggested in letters to the state governors that they request 45 M.P.H. speed limits for the nation's highways.

On March 18, 1942, our Governor requested that cars and trucks not exceed a 45 M.P.H. limit. On July 26 this limit was lowered to 40 M.P.H. in Indiana, and several hundred 40 M.P.H. "patriotic speed" signs were placed on all principal highways of the State. Then, on the recommendation of the Baruch Rubber Committee, the entire nation was placed on a mandatory 35 M.P.H. speed limit on October 1, 1942. In order to insure further conservation of rubber and to relieve gasoline transportation difficulties, the nation was placed on a gasoline rationing program in addition to the existing 35 M.P.H. limit effective December 1, 1942. The 40 M.P.H. signs were replaced by 35 M.P.H. signs.

The purpose of this report is to follow the trend in vehicular speeds during 1942 from a time of no speed limit to the present period in which we have gas rationing and a 35 M.P.H. speed limit. The report covers the period from February 9, 1942, to January 5, 1943.

The data included in this report were taken from speed studies made at 14 different locations in the State (Fig. 1) during about 50 different days of survey, with records of 12,286 cars and 3,672 trucks. The locations included are:

A—U. S. 52, 4.5 mi. S. of Lafayette
B—U. S. 52, 2 mi. N. of S. R. 28
C—U. S. 30, 1.6 mi. N. of S. R. 2
D—S. R. 25, 1.2 mi. S. of Americus
E—U. S. 52, 1 mi. S. of Montmorenci
F—U. S. 52, 5 mi. S. E. of Lebanon
G—U. S. 40, 5 mi. W. of S. R. 75
H—U. S. 41 and U. S. 52, 3.5 mi. S. of Kentland
I—U. S. 24, 3 mi. W. of S. R. 43
J—U. S. 31, 6 mi. N. of Kokomo
K—U. S. 31, 3 mi. S. of S. R. 26

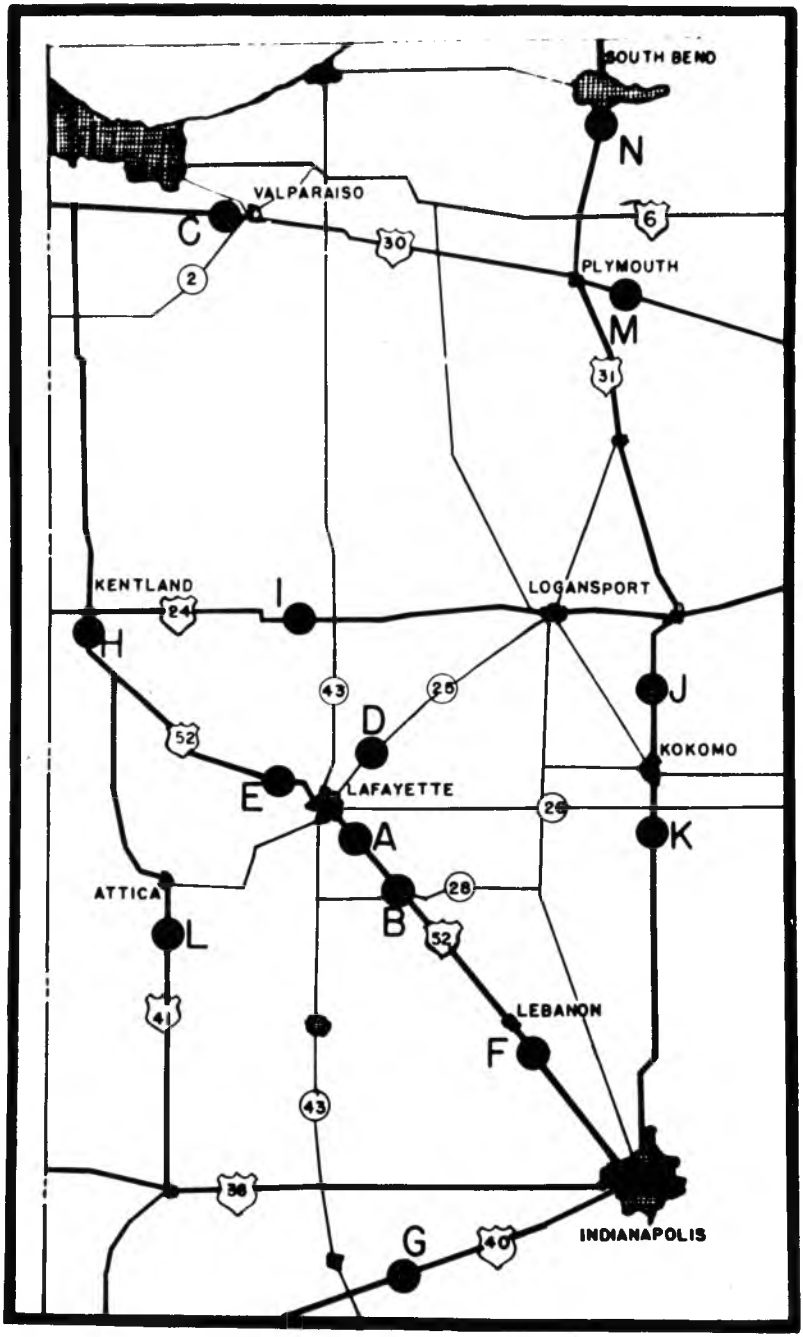

Fig. 1. Spot speed studies.

L—U. S. 41, 7 mi. S. of Attica
M—U. S. 30, 3 mi. W. of S. R. 331
N—U. S. 31, 5 mi. S. of South Bend

The data from each location have all been combined into five different "speed influencing" periods. These periods are:

1. No Speed Limit Period
2. 45 M.P.H. Speed Limit
3. 40 M.P.H. Speed Limit
4. 35 M.P.H. Speed Limit
5. Gas Rationing

Several curves have been prepared to represent motorists' reactions to these various speed-influencing periods.

Fig. 2—The "No Speed Limit" Period. This figure shows car and truck speed conditions before speeds were restricted on March 18, 1942. It represents the results of 10 days' obser-

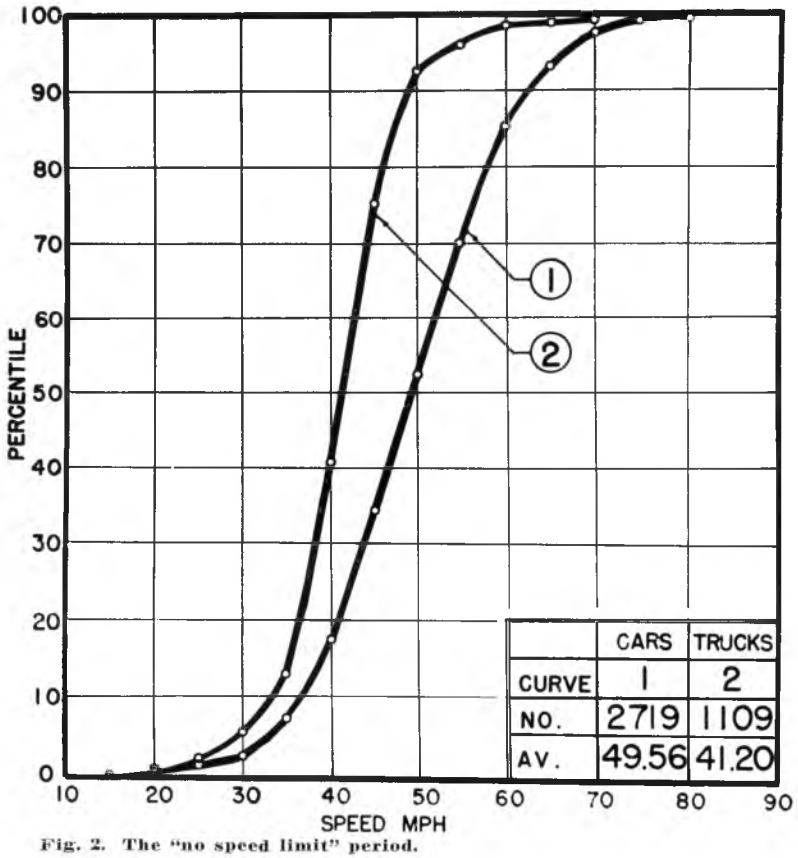

Fig. 2. The "no speed limit" period.

vations. It can be seen that cars averaged 49.56 M.P.H. and trucks 41.20. The maximum car speed recorded during this period was 92.14 against 69.59 for trucks.

Fig. 3—45 M.P.H. Speed Limit Period. This figure represents speed conditions covering the period from March 18 to July 25, 1942, and is a summary of 19 days' results. It represents speeds of all cars, trucks, Indiana cars and foreign cars. (Cars were not classed by states until April 16, 1942.) It can be seen that cars averaged 49.92 against 41.58 M.P.H. for trucks. Indiana cars averaged 49.16 and foreign cars averaged 51.58 M.P.H. The highest speeds recorded during this period were 100.21 for a car and 68.22 for a truck. (However, one bus was observed going 74.11 M.P.H.) It can be seen that 68 percent of the cars and 27 percent of the trucks exceeded the 45 M.P.H. limit. Also, that 55 percent of the Indiana cars and 77 percent of the foreign cars exceeded the limit.

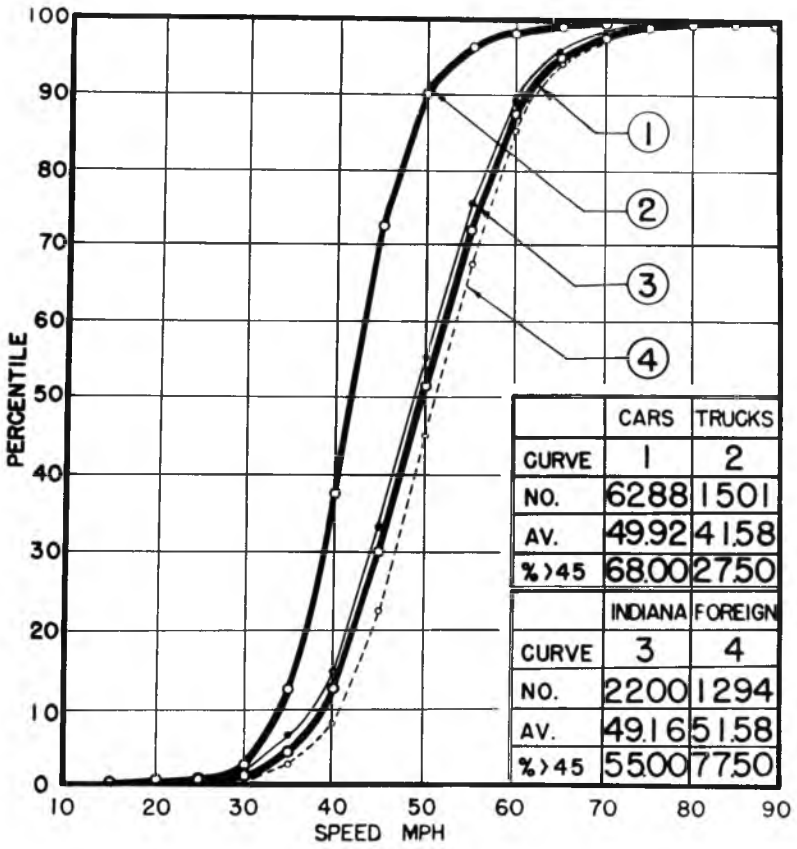

Fig. 3. 45 M.P.H. speed limit period.

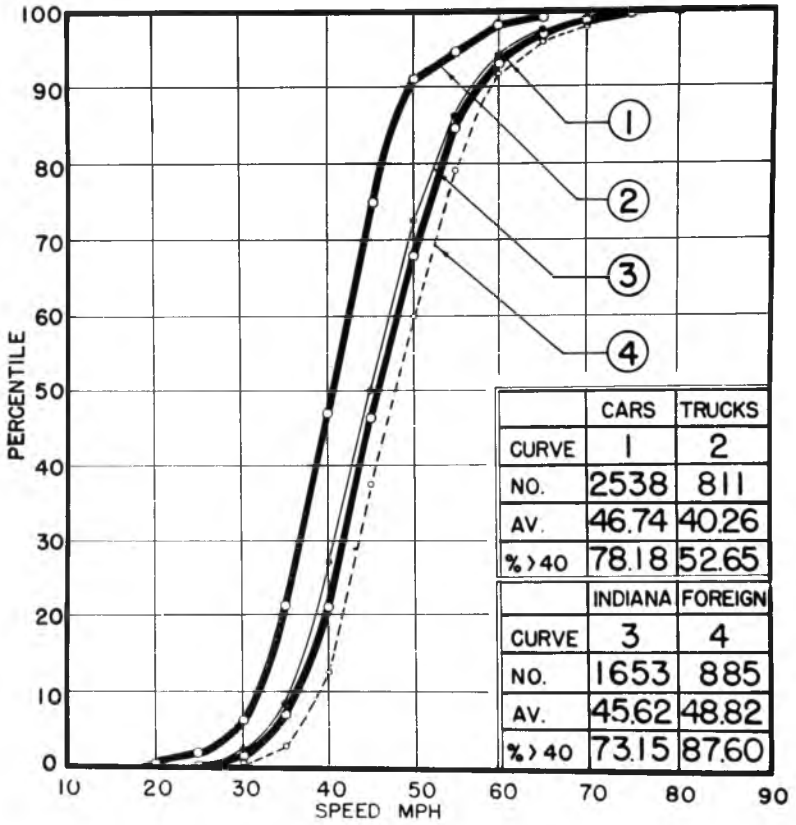

Fig. 4. 40 M.P.H. speed limit period.

Fig. 4—40 M.P.H. Speed Limit Period. This figure shows speed conditions of all cars, trucks, Indiana cars, and foreign cars during the period of July 26 to October 1, 1942, and is a summary of 16 days' survey. Car speeds averaged 46.74 M.P.H. and trucks 40.26 M.P.H. Indiana cars averaged 45.62 against 48.82 for foreign. The highest speeds were 86.31 for cars and 67.50 for trucks. It can be seen that 78 percent of the cars and 52 percent of the trucks exceeded the 40 M.P.H. limit. Also, that 73 percent of the Indiana cars and 87 percent of the foreign cars exceeded the limit.

Fig. 5—35 M.P.H. Speed Limit Period. This figure shows speed conditions during the period of October 1 to December 1, 1942, and is a summary of five days' survey. Car speeds averaged 42.32 and truck speeds averaged 39.78 M.P.H. In-

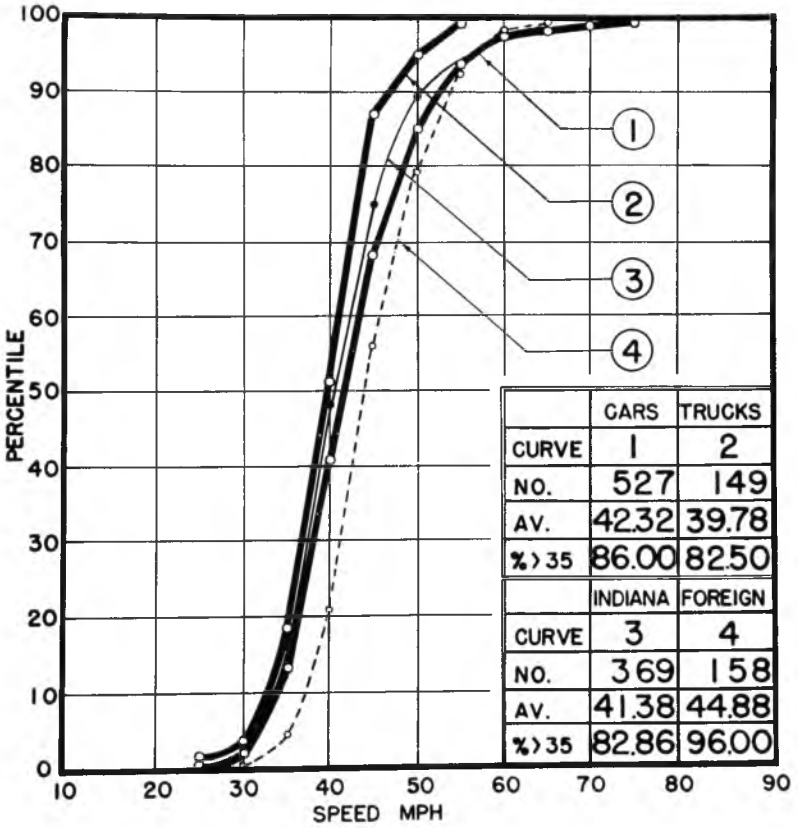

Fig. 5. 35 M.P.H speed limit period.

diana cars averaged 41.38 against 44.88 for foreign cars. Eighty-six percent of the cars and 82.5 percent of the trucks exceeded the 35 M.P.H. limit. Eighty-two percent of the Indiana cars and 96 percent of the foreign cars exceeded the limit The highest speeds recorded during this period were 74.11 for cars and 54.10 for trucks.

Fig. 6—Gas Rationing Period. This figure represents the results of a two-day survey made since December 1, 1942, during the gas rationing period. This chart shows a trend only, since the data are insufficient to warrant making definite conclusions concerning present-day speeds. However, the curve does demonstrate the fact that present car speeds are slower, with an average of 40.62 M.P.H. and truck speeds 39.94. Indiana cars averaged 39.50 against 45.84 for foreign. It can be seen that 80 percent of the cars and 82 percent of the trucks exceeded the 35 M.P.H. limit.

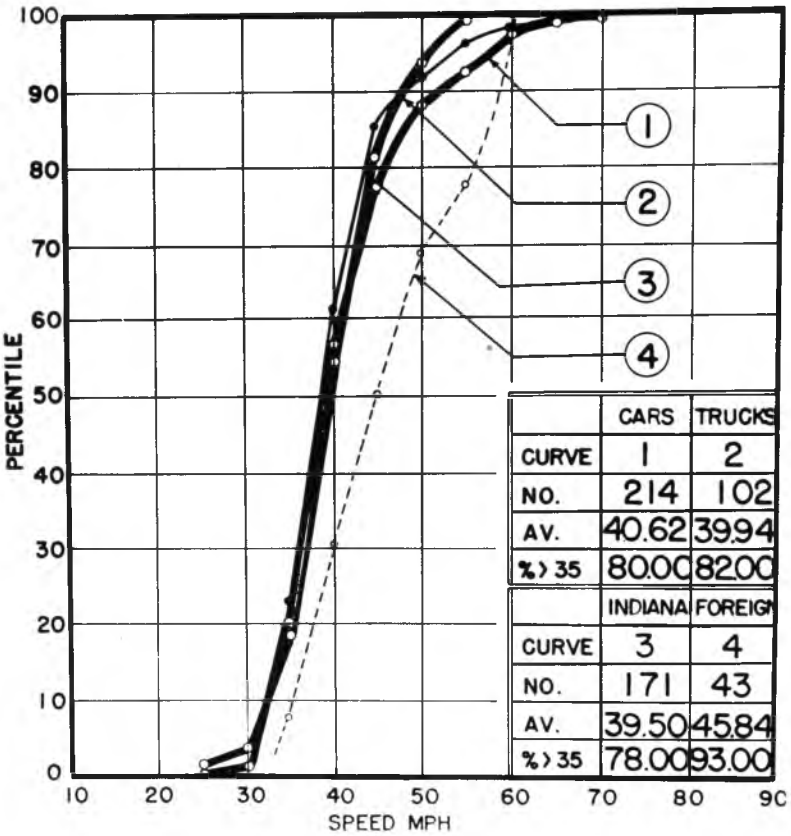

Fig. 6. Gas-rationing period. 35 M.P.H. speed limit.

Tables 1 and 2—Percentile Speeds. These tables compare percentages of cases going less than any speed between the various speed-influencing periods. To illustrate this method of comparison, note the percentage of cases going less than 50 M.P.H. in each period for cars. It follows that before March 18, 51 percent were going less than 50 M.P.H.; March 18 to July 26, 51 percent; July 26 to October 1, 68 percent; October 1 to December 1, 85 percent; and December 1 to the present, 88 percent, less than 50 M.P.H.

In conclusion, this study can be summarized as follows:

1. Car speeds have dropped 10 M.P.H. during the past year.
2. Truck speeds have dropped about 3 M.P.H. during the past year.
3. Foreign cars averaged from 3 to 5 M.P.H. faster than Indiana cars during the past year.
4. About 80 percent of the cars and 80 percent of the trucks are exceeding the 35 M.P.H. speed limit.

TABLE 1

PERCENTILE SPEEDS

(Percentages of vehicles going less than the stated speed)

Speed M. P.H.	No Speed Limit To Mar. 18, 1942		45 M.P. H. Limit Mar. 18-July 26		40 M.P. H. Limit July 26-Oct.1		35 M. P. H. Limit Oct. 1-Dec. 1		Gas Rationing Dec. 1, 1942	
	All Cars	Trucks	All Cars	Trucks	All Cars	Trucks	All Cars	Trucks	All Cars	Trucks
80	99+	100	99+	100	99+	100	100	100	100	100
70	97	99	96	99	99	100	98	100	99	100
60	85	98	87	98	93	99	96	100	97	100
50	51	92	51	90	68	92	85	95	88	93
40	16	40	13	39	22	47	41	51	56	56
30	2	4	2	4	1	6	2	3	1	3
20	1-	1-	0	1-	0	1	0	0	0	0

TABLE 2

PERCENTILE SPEEDS

(Percentages of vehicles going less than the stated speed)

Speed M.P.H.	45 M.P.H. Limit Mar. 18-July 26		40 M.P.H. Limit July 26-Oct. 1		35 M.P.H. Limit Oct. 1-Dec. 1		Gas Rationing Dec. 1, 1942	
	Indiana	Foreign	Indiana	Foreign	Indiana	Foreign	Indiana	Foreign
80	99+	99+	99+	99+	100	100	100	100
70	98	98	99	98	99	100	99	100
60	88	84	94	91	98	99	98	99
50	55	45	72	60	87	79	94	69
40	14	8	27	12	50	22	61	30
30	2	1	2	1	3	0	2	0
20	0	0	0	0	0	0	0	0